Abstracts

Time Domain Electromagnetic Simulation for Microwave CAD Applications

Rapid progress in time domain modeling and computer technology have brought practical time domain simulators within reach. The next decade will see the emergence of sophisticated time domain simulation tools linking geometry, layout, physical and processing parameters of a microwave or high speed digital circuit with its system specifications and the desired time and frequency performance, including electromagnetic susceptibility and emissions. These CAD systems will most likely employ dedicated parallel processors configured specifically for modeling three-dimensional field problems. Furthermore, the nature of discrete time domain algorithms allows the designer to employ optimization and synthesis procedures which differ from those employed in traditional frequency domain CAD tools. In this paper, recent progress in time domain modeling will be highlighted, and the possible impact of these development on future CAD procedures and systems will be discussed.

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